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UNITED STATES DISTRICT COURT

NORTHERN DISTRICT OF CALIFORNIA

OAKLAND DIVISION

IN RE: CATHODE RAY TUBE (CRT) ANTITRUST LITIGATION	MDL NO. 1917
	Case No. 07-cv-5944-JST
This Document Relates to: *ALL INDIRECT PURCHASER ACTIONS*	**INDIRECT PURCHASER PLAINTIFFS' POST-TRIAL BRIEF**
	Hearing Date: May 19-21, 2025 Courtroom: 6, 2nd Floor
	The Honorable Jon S. Tigar

TABLE OF CONTENTS

TABLE OF AUTHORITIES

Page(s)

Cases

Other Authorities

GLOSSARY OF TERMS

BMCC	Beijing-Matsushita Color CRT Company, Ltd.
CAC	Indirect Purchaser Plaintiffs' Fifth Consolidated Amended Complaint, ECF No. 5589
Chunghwa	Chunghwa Picture Tubes Ltd. and Chunghwa Picture Tubes (Malaysia) Sdn. Bhd., collectively
CRT	Cathode Ray Tube
Daewoo/Orion	Daewoo Electronics Company, Ltd., Orion Electric Company, and Daewoo-Orion Société Anonyme, collectively
FOF	Findings of Fact
Guerin-Calvert Rpt. (TX 11)	Expert Report of Margaret E. Guerin-Calvert dated August 5, 2014 and Errata dated September 23, 2014 (Indirect Purchaser Actions)
Guerin-Calvert Surrebuttal (TX 13)	Expert Surrebuttal Report of Margaret E. Guerin-Calvert dated November 6, 2014 (Indirect Purchaser Actions)
Guerin-Calvert Supp. Rpt. (TX 14)	Supplemental Expert Report of Margaret E. Guerin-Calvert dated March 16, 2022 and Errata dated March 21, 2022 (Indirect Purchaser Actions)
Guerin-Calvert Daubert Decl. (TX 15)	Declaration of Margaret E. Guerin-Calvert in Support of Motion by Irico Group Corp. and Irico Display Devices Co., Ltd. to Exclude Testimony of Dr. Janet Netz, dated February 15, 2023 (Indirect Purchaser Actions)
Guerin-Calvert Daubert Reply (TX 16)	Declaration of Margaret E. Guerin-Calvert in response to Declaration of Dr. Janet Netz Opposing Motion to Partially Exclude the Testimony of Dr. Netz, dated April 5, 2023 (Indirect Purchaser Actions)
Hitachi	Hitachi, Ltd., Hitachi Displays, Ltd., Hitachi Electronics Devices (USA), Inc., Hitachi America, Ltd., Hitachi Asia, Ltd., Shenzhen SEG Hitachi Color Display Devices, Ltd., collectively
Hr'g Tr.	Hearing Transcripts for the May 19-21, 2025 Damages Hearing
IPPs	Indirect Purchaser Plaintiffs
Irico	Irico Group Corporation, Irico Display Devices Co., Ltd., Irico Group Electronics Co., Ltd., collectively

Johnson Rpt. (TX 202)	Expert Report of Phillip M. Johnson, Ph.D. dated May 26, 2023 (Direct Purchaser Actions)
Johnson Rebuttal (TX 203)	Expert Rebuttal Report of Phillip M. Johnson, Ph.D. dated September 1, 2023 (Direct Purchaser Actions)
LG Electronics	LG Electronics, Inc., LG Electronics U.S.A., Inc., and LG Electronics Taiwan Taipei Co., Ltd., collectively
LP Displays	LP Displays International, Ltd. (f/k/a LG Philips Displays)
MTPD	MT Picture Display Co., Ltd.
Mitsubishi	Mitsubishi Electric Corporation, Mitsubishi Electric & Electronics USA, Inc., and Mitsubishi Digital Electronics Americas, Inc., collectively
Netz Class Cert. Rpt. (TX 1)	Declaration of Janet S. Netz, Ph.D., in Support of Motion of Indirect-Purchaser Plaintiffs for Class Certification dated October 1, 2012 and Errata dated October 9, 2012
Netz Class Cert. Rebuttal (TX 2)	Rebuttal Declaration of Janet S. Netz, Ph.D., in Support of Motion of Indirect-Purchaser Plaintiffs for Class Certification dated February 15, 2013
Netz Rpt. (TX 3)	Expert Report of Janet S. Netz, Ph.D. dated April 15, 2014 and Errata dated July 3, 2014
Netz Errata (TX 3)	Errata to the Expert Report of Janet S. Netz, Ph.D. dated July 3, 2014
Netz Rebuttal (TX 5)	Rebuttal Expert Report of Janet S. Netz, Ph.D. dated September 26, 2014
Netz Daubert Decl. (TX 7)	Declaration of Janet S. Netz, Ph.D. in Response to Irico Defendants' Motion to Partially Exclude Testimony dated March 20, 2023
OECD	Organization for Economic Co-operation and Development
Panasonic	Panasonic Corporation (f/k/a Matsushita Electric Industrial Co., Ltd.), Panasonic Corporation of North America, and Matsushita Electronic Corporation (Malaysia) Sdn Bhd., collectively
Philips	Koninklijke Philips Electronics N.V. a/k/a Royal Philips Electronics N.V., Philips Electronics North America Corporation, Philips Electronics Industries (Taiwan), Ltd., and Philips da Amazonia Industria Electronica Ltda., collectively

Samsung	Samsung Electronics Co., Ltd., Samsung Electronics America, Inc., Samsung SDI Co., Ltd. (f/k/a Samsung Display Device Co., Ltd.), Samsung SDI America, Inc., Samsung SDI Mexico S.A. de C.V., Samsung SDI Brasil Ltda., Shenzhen Samsung SDI Co., Ltd., Tianjin Samsung SDI Co., Ltd., and Samsung SDI (Malaysia) Sdn. Bhd., collectively
Samtel	Samtel Color, Ltd.
Tatung	Tatung Company of America, Inc.
Thai CRT	Thai CRT Company, Ltd.
Thomson	Thomson SA (n/k/a Technicolor SA) and Thomson Consumer Electronics, Inc. (n/k/a Technicolor USA, Inc.), collectively
Toshiba	Toshiba Corporation, Toshiba America, Inc., Toshiba America Consumer Products, LLC, Toshiba America Information Systems, Inc., Toshiba America Electronics Components, Inc., and Toshiba Display Devices (Thailand) Company, Ltd., and P.T. Tosummit Electronic Devices Indonesia, collectively
TX	Trial Exhibits to the May 19-21, 2025 Evidentiary Hearing before Judge Jon S. Tigar
Videocon	Videocon Industries, Ltd.
Willig Rpt. (TX 10)	Expert Report of Robert D. Willig dated August 5, 2014 and Errata dated September 10, 2014 and September 23, 2014 (Indirect Purchaser Actions)
Willig Surrebuttal (TX 12)	Expert Surrebuttal Report of Robert D. Willig dated November 6, 2014 (Indirect Purchaser Actions)

I. INTRODUCTION

The evidence presented at the May 19-21, 2025 hearing established that the cartel successfully raised the price of all types of CRTs above competitive levels and that every expert's work in the case showed significant overcharges and damages. At the hearing, Irico contested IPPs' expert Dr. Janet Netz's opinions that the cartel's conduct impacted all types of CRTs as well as the overcharge estimates to direct purchasers derived from her regression model. Irico did not contest Dr. Netz's opinion that 100 percent of the overcharge to direct purchasers was passed through to the indirect purchaser class members. Nor did Irico contest the methodology Dr. Netz employed to transform the overcharge percentages to damages calculations, focusing criticism only on the overcharge percentages.

Dr. Netz's model for estimating the amount of the overcharge is reasonable, reliable and consistent with the facts. DPPs' expert Dr. Philip Johnson's model is similar in specification to Dr. Netz's model and the difference in results is substantially reduced once Dr. Johnson's combined CDT/CPT model is decoupled. By contrast, Irico's expert Ms. Guerin-Calvert's approach to estimating damages is fundamentally flawed, unreliable, and lacks credibility.

IPPs submit that the Court should adopt Dr. Netz's overcharge estimates of 22.0 percent (1995-2006) and 11.4 percent (2007) for CDTs and 9.0 percent (1995-2006) and 3.1 percent (2007) for CPTs. *See* TX 3 (Netz Errata). When these percentages are applied to Dr. Netz's undisputed 100 percent pass-through rate and estimation of revenue, the damages to IPPs are **$2,697,957,236.**

II. THE LAW PROVIDES BROAD LATITUDE IN QUANTIFYING ANTITRUST DAMAGES

Courts employ a relaxed standard in determining damages in antitrust actions because of the uncertainty of the but-for world. *See J. Truett Payne Co. v. Chrysler Motors Corp.*, 451 U.S. 557, 566 (1981) ("The vagaries of the marketplace usually deny us sure knowledge of what plaintiff's situation would have been in the absence of the defendant's antitrust violation."); *see also In re Restasis (Cyclosporine Ophthalmic Emulsion) Antitrust Litig.*, 335 F.R.D. 1, 32 (E.D.N.Y. 2020) ("'[G]iven the inherent difficulty of identifying a 'but-for world,' antitrust

damages need not 'be measured with certainty.'") (citation omitted). Antitrust offenders bear the risk of the uncertainty their conduct has created. *See J. Truett Payne Co.,* 451 U.S. at 566-67 ("[I]t does not come with very good grace for the wrongdoer to insist upon specific and certain proof of the injury which it has itself inflicted.") (internal quotation marks and citation omitted). Damages may be based on average estimated overcharges paid as long as the average estimate is based on evidence and reasonable inference. *See Bigelow v. RKO Radio Pictures*, 327 U.S. 251, 264 (1946) (factfinder "may make a just and reasonable estimate of the damage based on relevant data").

"[M]ultiple-regression analysis is a sound and, indeed, commonplace method for isolating the pricing effects of alleged anticompetitive conduct." *Apple iPod iTunes Antitrust Litig*., No. 05-CV-0037 YGR, 2014 WL 4809288, at *4 (N.D. Cal. Sept. 26, 2014). "[E]conometrics . . . necessarily contains certain value judgments and hypotheses that are tested and used in conjunction with statistics." *Id.* at *6. "[N]o complex model is perfect. At the end of the day, a regression model is meant to generate *estimates* for what the modeler is attempting to measure." *City of Philadelphia v. Bank of Am. Corp.*, No. 19-CV-1608 (JMF), 2023 WL 6160534, at *5 (S.D.N.Y. Sept. 21, 2023).

So too, upon default, a "[p]laintiff's burden in 'proving up' damages is relatively lenient." *Elektra Ent. Grp., Inc. v. Bryant*, No. CV 03-6381GAF(JTLX), 2004 WL 783123, at *2 (C.D. Cal. Feb. 13, 2004). Plaintiffs may recover damages based on a reasonable estimation. *Flynn v. Extreme Granite, Inc.*, 671 F. Supp. 2d 157, 162 (D.D.C. 2009).

III. DR. NETZ'S DAMAGES ESTIMATE IS REASONABLE, RELIABLE, AND CONSISTENT WITH THE FACTS

Dr. Janet S. Netz is an applied econometrician with over 30 years' experience teaching at the Universities of Delaware, Purdue and Michigan and serving as an expert in 25 cases. Hr'g Tr. 12:2-22. Since 2008, she has led a team of over 20 economists and analysts who have spent over 30,000 hours and have produced ten expert reports regarding the CRT cartel. *Id.* at 12:23-14:5-20.

A. The CRT Cartel Increased the Prices of All CRTs Above Competitive Levels

At the hearing, Dr. Netz testified that "the cartel had a widespread effect and increased the prices of all types of CRT tubes above the competitive level." Hr'g Tr. 15:1-5. Dr. Netz found that

the Defendants "engaged in a wide manner of activities that would have the effect to raise the price[,]" and that the economic literature confirmed that the types and range of conduct they engaged in "will raise prices." *Id*. at 17:18-19:4.[1] Dr. Netz also found that the CRT marketplace had the two characteristics necessary to sustain supra-competitive prices: (1) the Defendants collectively had market power, and (2) there were high barriers to entry. *Id.* at 19:5-22:22; TX 3 (Netz Rpt.) at 32-35. Ms. Guerin-Calvert conceded that the CPT industry is characterized by high barriers to entry (*id*. at 336:5-24), and she adopted Dr. Willig's testimony that the frequent industry meetings here are a "plus factor" that facilitated successful coordination. *Id.* at 337:2-19.

Dr. Netz further demonstrated that all types of CRTs were impacted by the cartel by demonstrating empirically that "there was a price structure that related the prices across different types of tubes[,]" and that "price [was] determined largely by the characteristics of the product." *Id*. at 24:11-20, 32:9-17; *see also* TX 3 (Netz Rpt.) at 68-69 (describing hedonic regression analyses). It is well accepted among economists that a price structure will usually be the goal of a cartel. *Id.* at 26:1-15. Cartel members also recognized there was a CRT price structure, which meant that if they raised the price of one tube, they needed to also raise the prices of other tubes. *Id.* at 27:2-31:19 (describing TX 234, testimony of Chunghwa's Vice President of Sales, C.C. Liu; *see also* TX 3 (Netz Rpt.) Ex. 39; TXs. 42, 77 and 80). Ms. Guerin-Calvert's claim that there is no price structure because there was heterogeneity in price movements for different types of CRTs (*id.* at 211:23-212:8) is a red herring. Ms. Guerin-Calvert conceded that even her model showed "positive effects" of the cartel. *Id*. at 386:5-12. Dr. Netz never claimed the price structure was "constant," and her conclusions are consistent with a price structure that changes over time. TX 5 (Netz Rebuttal) at 31.

Dr. Netz's Granger causality regressions confirm that target prices increased actual prices for *all* CRTs above competitive levels, including actual prices for CRTs for which no documented target price exists. *Id*. at 32:18-24; *see also* TX 3 (Netz Rpt.) at 63-65, 71, Exs. 37-38, 44-45; TX

[1] The different types of anticompetitive conduct engaged in by Defendants are reflected in the meeting reports admitted into evidence. *See, e.g*., TX 3 (Netz Rpt.) at 41-62, TX 19-44, 65-94.

5 (Netz Rebuttal) at 48-49.[2] Ms. Guerin-Calvert's analysis of "target price coverage" (Hr'g Tr. 215:4-220:13) is not only flawed, but also irrelevant because the cartel did not need to set target prices for every model of CRT. *See* TX 5 (Netz Rebuttal) at 10-13, 31. In addition, the cartel employed a variety of conduct to raise prices above competitive levels. Hr'g Tr. 18:3-19:4. That some actual prices were below the target prices (Hr'g Tr. 222:1-223:19) means only that Defendants did not raise prices to the level they wanted; it does not mean they did not raise prices above competitive levels. To measure the effectiveness of target prices, it is necessary to hold "all else equal" and determine whether setting target prices causes actual prices to increase, which Dr. Netz does with her target price regressions. *Id*. at 32:18-24; TX 5 (Netz Rebuttal) at 42.

Ms. Guerin-Calvert's testimony regarding product and price heterogeneity, dynamic market factors, and possible cheating by cartel participants—which she claims made it "more difficult" to raise prices and reduced the effectiveness of the cartel—are unsupported by any empirical tests or studies. *See, e.g*., Hr'g Tr. 24:21-25:25, 392:9-393-7. Her observations of CRT pricing and production data failed to control for CRT characteristics and other market factors, and do not undermine Dr. Netz's regressions. *Id.* at 207:14-209:12, 392:9-393:7; TX 5 (Netz Rebuttal) at 28-29.[3] Ultimately, Ms. Guerin-Calvert agreed that it should "be tested empirically what the actual impact is of the activity as compared to what is the impact on pricing of other factors." *Id*. at 230:7-9. The only remaining issue is the extent to which the cartel raised CRT prices above competitive levels—an empirical question answered by the overcharge regressions.

B. Dr. Netz Employed Standard, Well-Accepted Regression Analysis to Measure the Overcharge Caused by the Cartel

Dr. Netz employed a reduced form dummy variable model—a form of multiple regression analysis—to measure the CDT and CPT overcharges to direct purchasers. *Id.* at 33:1-13. Her

[2] *See also* Hr'g Tr. 125:17-126:12 (Dr. Johnson's explanation regarding why Ms. Guerin-Calvert's target price analysis is "really meaningless.").

[3] She also ignores the case evidence. *See, e.g.,* TX 37, 44, 85 (meeting reports show that Defendants set different target prices for similar CRTs based on the manufacturer, customer and quality).

specification is "by far the most commonly used type of regression analysis" for estimating cartel overcharges. *Id*. at 33:5-11, 34:4-8. Dr. Netz selected multiple explanatory variables to control for "all of the supply and demand factors that influence price[,]" along with two dummy variables that measure the cartel activity. *Id*. at 33:24-34:3. She selected the explanatory variables based on the market factors, economic principles, and the available data, and using her extensive experience and professional judgment. *Id*. at 34:11–35:5. She used two separate dummy cartel variables—one from 1995-2006, and the second for 2007—to control for a change in the legal environment in late 2006 when the government investigations into the LCD price-fixing conspiracy were announced, likely leading the CRT cartel to change its conduct. *Id*. at 35:18-36:25.

Because Defendants failed to produce usable cost data, Dr. Netz used the Bank of Korea's publicly available price index for display glass, which "is the single most important cost input" for CRTs. *Id.* at 37:1-38:9. Dr. Netz specified three glass cost variables to account for differing amounts of glass needed for different sized CRTs. As Dr. Netz explained, "the bigger the tube, the more glass is needed[,]" and the "incremental amount of glass needed is non-linear." *Id*. at 38:10-22, 73:8-74:17 (the CRT screen size variable is not only a "proxy for input cost, but also a demand control . . . [b]ecause demand for CRT depends on the size of it"). Dr. Netz was unable to include a labor cost variable because "the cost of labor varies widely across different countries" and the data did not allow her to match all CRTs to their country of manufacture. *Id*. at 38:23-39:6. Other variables in Dr. Netz's model also controlled for costs. *Id*. at 43:20-24, 77:7-10.

To control for demand, Dr. Netz used OECD gross domestic product, unemployment and unemployment squared variables to indicate the general macroeconomic conditions in which consumers purchased CRT televisions and monitors. Dr. Netz chose OECD data because it had "wide coverage of the countries where most of the demand [for CRT products] is going to be." *Id*. at 40:14-41:13, 75:9-25. Dr. Netz also used two LCD demand variables representing LCD's share of the monitor and television markets to control for the influence of LCDs and their potential impact on CRT prices over time. *Id.* at 41:14-42:15, 74:21-75:1.

Finally, Dr. Netz included additional variables "to capture any supply and demand factors on price that have not already been controlled for by the other variables." They are (1) time and time squared, which are time trend variables that allow for supply and demand factors to change over time and for the time trend to be non-linear; (2) a quarter variable to allow for seasonal variability such as higher demand for monitors for back to school; and (3) maker and maker times size variables (also described as the "manufacturer fixed effects") to capture any supply or demand effects that are specific to a particular manufacturer. *Id*. at 42:20-43:24, 75:13-25.

The variables Dr. Netz included in her model and the specification she formulated explain over 95 percent of CDT price variations and over 98 percent of CPT price variations. This is strong evidence that Dr. Netz's model does not omit a major factor needed to explain CDT or CPT prices. *Id.* at 48:3-10; TX 5 (Netz Rebuttal) at 61; TX 7 (Netz Daubert Decl.) at 7.

The explanatory variables employed by Dr. Netz are very similar to those employed by Dr. Johnson in his overcharge model.[4] The differences are that Dr. Johnson also used a lagged price variable and a "previous period sales" variable."[5] Another difference is that Dr. Johnson ran a single regression for CDTs and CPTs together whereas Dr. Netz ran separate CDT and CPT regressions. Hr'g Tr. 111:17-23. A substantial portion of the difference between Dr. Netz and Dr. Johnson's overcharge estimates is accounted for by Dr. Johnson's "unpooling" the CDT and CPT regressions—a step Ms. Guerin-Calvert contends is "critical" despite failing to report her results of unpooling Dr. Johnson's regressions. *Id*. at 60:7-23, 121:6-122:3, 236:19-238:17, 351:16-352:19. In response to Ms. Guerin-Calvert's criticism, Dr. Johnson ran his overcharge regression

[4] Hr'g. Tr. 152:6–154:18 (describing Dr. Johnson's variables in TX 202, Johnson Rpt. at 29, Fig. 3, and comparing them to Dr. Netz's variables). Dr. Johnson used G7 data for his gross domestic product and unemployment variables, which are comparable to Dr. Netz's OECD variables: "They're both proxies for – for general economic activity, global economic activity. So they're both kind of getting at the same – the same effect or the same impact." *Id*. at 153:24 – 154:2.

[5] As Dr. Johnson testified, the lagged CRT price variable is what makes his model "dynamic." *Id.* at 153:3-8; *see also id.* at 111:3-15, 156:5-157:2. Dr. Johnson's "previous period sales" variable is a "proxy for demand." *Id.* at 153:9-11. These additional variables did not make a meaningful difference in the overcharge estimates.

separately for CDTs and CPTs and reported that the CDT overcharge increased to 14.9 percent and the CPT overcharge to 6.2 percent—substantially closer to Dr. Netz's estimated CDT overcharge of 22.0 percent and CPT overcharge of 8.9 percent. *Id.* at 60:7-23, 121:13-122:1; TX 203 at 49-50.[6] While Dr. Netz's estimated overcharges remain higher than Dr. Johnson's unpooled estimates, they are below the median overcharges for long-running, international cartels.[7]

C. Ms. Guerin-Calvert's Additional Variables Are Unnecessary and Inappropriate and Cause Severe Multicollinearity Leading to Meaningless Results

Ms. Guerin-Calvert contends that Dr. Netz's overcharge regressions omit important variables and that it is necessary to add four control variables to Dr. Netz's CDT overcharge regression—all at the same time—in addition to adding two annual cartel dummy variables for 1995 and 1996. She also adopts Dr. Willig's opinion that four control variables should be added to Dr. Netz's CPT overcharge regression. Hr'g Tr. at 268:6-270:10.

Adding all four control variables and the two annual cartel dummy variables to Dr. Netz's regression models at the same time causes severe multicollinearity. *Id*. at 55:2-7, 63:1-64:8, 96:18-98:6; TX 7 (Netz Daubert Decl.) at 10-11. Multicollinearity is an econometric problem caused by "[h]igh (but not perfect) correlation between two or more independent [explanatory] variables[.]"[8] It "means that the coefficients on the cartel variable are no longer isolating the impact of the cartel

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[6] IPPs continue to dispute—and reserve their rights to challenge and appeal—the Court's Order denying IPPs' request to present evidence that the other major factor causing Dr. Johnson's overcharges to be lower than Dr. Netz's overcharges is simply that Dr. Johnson weighted the data differently in his regression by using Ordinary Least Squares instead of Weighted Least Squares. Hr'g Tr. at 400:13-410:9; *see also* ECF Nos. 6484, 6485, 6487.

[7] Hr'g Tr. 48:3-10. A comprehensive study of cartels found that the median cartel overcharge for international cartels is 32%. In addition, a survey of 24 final verdicts in decided U.S. horizontal collusion cases reveals an average median overcharge of 21% and an average mean overcharge of 30%. Outside the United States, 62 decisions of competition commissions cited median average overcharges of 29% and a mean of 49%. *See* Connor, John M., Price-Fixing Overcharges: Legal and Economic Evidence (Nov. 2004). American Antitrust Institute Working Paper No. 04-05, Available at SSRN: https://ssrn.com/abstract=1103516.

[8] TX 7 (Netz Daubert Decl.) at 10 (quoting Woolridge, Jeffrey M., 2013 Introductory Econometrics, Fifth Edition, South-Western College Publishing: Mason, at 95).

but are also picking up on these supply and demand influences as well[,]" resulting in imprecise and unreliable coefficients. Hr'g Tr. 55:4-7, 124:21-125:3, 159:14-160:11.[9]

Here, Ms. Guerin-Calvert's additional cartel dummy variables are collinear with Dr. Netz's time trend variables and her other variables that include a time component,[10] such that their cartel and market effects cannot be separately identified. *Id.* at 55:2-7, 63:1-64:8, 96:18-98:6; TX 7 at 10-11. Ms. Guerin-Calvert conceded the confounding effects of her dummy variables although she insists that they correct for what she claims is bias. *Id*. at 300:5-10, 377:22-379:12, 393:8-394:14. Likewise, Ms. Guerin-Calvert's four control variables—the USD/KRW exchange rate, desktop shipments,[11] the Baltic Dry Index and Korean Labor Costs—include time components which interact with and confound the effect of Dr. Netz's time trend variables and other variables with time components. *Id.* at 55:2-7, 63:1-64:8, 96:18-98:6, 417:10-419:4; TX 7 at 5, 10.

The effects of this multicollinearity can be seen in the implausibly low, statistically insignificant, 1.6 percent CDT overcharge for 1997-2006 and the **negative** 2.7 percent overcharge for 2007 produced by Ms. Guerin-Calvert's model. Hr'g Tr. 299:3-299:16; TX 11 (Guerin-Calvert Rpt.) at 82, Table 8, Column 3.[12] Similarly, adding the four variables to the CPT regression resulted in an implausibly low, statistically insignificant 2.3 percent overcharge for 1995-2006 and a **negative** 3.8 percent overcharge for 2007. Hr'g Tr. 232:15-233:8; TX 10 (Willig Rpt.) at 51-52.

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[9] *See also* TX 7 (Netz Daubert Decl.) at 10 ("The greater the multicollinearity between two variables, the less precise are the estimates of individual regression parameters, and an expert is less able to distinguish among competing explanations for the movement in the outcome variable." Federal Judicial Center and National Research Council, 2011, Reference Manual on Scientific Evidence: Third Edition, The National Academic Press: Washington, DC, at 218).

[10] The glass cost, OECD GDP, OECD unemployment, and LCD variables all control for their differing effects over time. *See* TX 7 (Netz Daubert Decl.) at 5.

[11] For the CPT regression, a U.S. electronic sales variable was substituted for the desktop shipment variable. TX 15 (Guerin-Calvert Daubert Decl.) at 9-10, fn. 25.

[12] IPPs address Ms. Guerin-Calvert's replacement of the 16.1 percent overcharge for 1995 and the 23.5 percent overcharge for 1996 that resulted from her model with the 1.6 percent overcharge for 1997-2006 in Section III. D., *infra*.

Dr. Netz conducted sensitivity tests for each of Ms. Guerin-Calvert's control variables individually, as well as for a fuel cost control, and found that her model was robust to the inclusion of each of them because they "did not make the results change significantly." Hr'g Tr. 39:10-40:13, 47:25-48:10, 101:16-102:11; *see also* TX 5 (Netz Rebuttal) at 62, n.293. For all but one of the CDT variables, the estimated overcharge on CDTs increased; and for CPTs, the overcharge decreased by 1-3 percentage points for each variable. Hr'g Tr. 39:7-40:13, 100:12-102:11; TX 5 (Netz Rebuttal), Ex. RR-99. Ms. Guerin-Calvert contended Dr. Netz's model "is not particularly robust to" the addition of these variables. Hr'g Tr. 274:20-275:10. However, when pressed as to what "robust" means in this context, Ms. Guerin-Calvert refused to answer the question, instead testifying that "the model is not robust to the inclusion of **all of the variables.**" *Id*. 275:24-277:15 (emphasis added).[13]

Dr. Netz also determined that it was not economically appropriate to add any of Ms. Guerin-Calvert's additional variables to her model. *First*, Dr. Netz found it inappropriate to add the two cartel dummy variables for 1995 and 1996 not only due to multicollinearity concerns, but also because there is no economic justification for breaking up the 1995-2006 cartel dummy. The variables in Dr. Netz's model sufficiently controlled for the market conditions in 1995-1996 such as the glass shortage and the claimed "demand shock" from the introduction of Windows 95. *Id*. at 54:12-55:1, 91:22-96:17, 102:12-19; TX 7 (Netz Daubert Decl.) at 8-9. Ms. Guerin-Calvert acknowledged that Dr. Netz's model captures changes in the cost of CRT glass. Hr'g Tr. 328:4-11. Moreover, when Dr. Netz added the desktop shipments variable suggested by Ms. Guerin-Calvert, the estimated CDT overcharge **increased** from 22.0 percent to 28.2 percent. *Id.* at 309:18-312:17; TX 5 (Netz Rebuttal), Ex. RR-99; *see also* Hr'g Tr. 162:14-163:21 (Dr. Johnson also tested adding a desktop sales variable to his model, but he too found it "doesn't undermine my finding of

[13] Notably, Ms. Guerin-Calvert later characterized changes of 3-5 percent in the overcharge estimate as "small" and "insignificant." *Id.* 369:7-21, 380:23-381:16.

overcharges.").[14] In contrast, Ms. Guerin-Calvert did not perform any empirical analysis to measure the purported effect from Windows 95 on CDT prices. Hr'g Tr. 163:5-21; 365:19-366:2.

Dr. Netz further tested the reliability of her model's results by breaking the cartel dummy variable into three periods that match economic events rather than random calendar years: period 1, when CRTs were more prevalent than LCDs; period 2, when LCDs dominated the market; and, period 3, when the government investigations into the LCD cartel came to light. Significantly, the resulting overcharges were very similar to her original model, further confirming the reliability of those results. *Id*. 56:21-57:17; TX 7 (Netz Daubert Decl.) at 9-10.

Second, Dr. Netz concluded it was inappropriate to add the Korean Won-U.S. dollar exchange rate because she had converted all currency-related variables used in her regressions to U.S. dollars. Therefore, Dr. Netz had already accounted for any exchange rate fluctuations (including those attributable to the Asian financial crisis[15]) in her analyses. TX 5 (Netz Rebuttal) at 61 n.290; TX 7 (Netz Daubert Decl.) at 5. In addition, it makes no sense to use Korean Won as the exchange rate given that the vast majority of global CRTs were manufactured outside of South Korea. For the same reason, it is inappropriate to use a Korean labor cost variable, particularly since the cost of labor varies widely by country. Hr'g Tr. 39:1-6. Ms. Guerin-Calvert conceded that both CDTs and CPTs were made in many different countries, and she failed to show that South Korea is a good proxy for these other countries. Hr'g Tr. 317:12-318:7; *see also* TX 3 (Netz Rpt.) Ex. 3 (listing over 20 countries other than South Korea in which CRTs were produced including 13 countries outside of Asia). Nonetheless, Dr. Netz tested including the exchange rate variable

[14] Dr. Netz nevertheless chose not to include the desktop shipments variable because "it's partially endogenous," meaning the price of CRTs, "which is what we're trying to explain, is going to partly determine shipments of desktop computers." Hr'g Tr. 79:12-24, 80:12-81:7. Endogeneity "will bias the resulting coefficient estimates, and make these estimates unreliable for damage estimation." ABA SECTION OF ANTITRUST LAW, PROVING ANTITRUST DAMAGES: LEGAL AND ECONOMIC ISSUES (3d ed. 2017) at 149.

[15] Ms. Guerin-Calvert's testimony that the "Asian financial crisis" was "so significant" for the CRT market and must be controlled for (Hr'g Tr. 251:7-22, 273), is belied by her failure to mention it in any of her reports in the IPP case until her April 5, 2023 Daubert Reply Decl. *See* TX 16 at 24-25. She failed to mention it at all in the DPP case. Hr'g Tr. 252:14-253:23; 272:5-9.

and found that the overcharges remained positive and significant—16.5 percent for CDTs and 7.6 percent for CPTs. Dr. Netz also tested the Korean labor cost variable and found that the CDT and CPT overcharges changed to 30.2 percent and 7.7 percent, respectively. Hr'g Tr. 39:10-40:7; TX 5 (Netz Rebuttal), Ex. RR-99.[16]

Third, Dr. Netz disputed the relevance of the Baltic Dry Shipping index as a control variable since, as Ms. Guerin-Calvert conceded, this index relates to shipping costs for major raw materials and CRTs are not raw materials. Hr'g Tr. 312:9-314:20. In addition, Dr. Willig agreed that the cost of shipping is irrelevant to the prices of CPTs made in North America. *Id*. at 314:23-316:12. In any event, when Dr. Netz tested adding the Baltic Dry Shipping index variable to her regressions, the CDT overcharge increased to 25.0 percent and the CPT overcharge decreased by three percentage points to 5.9 percent. TX 5 (Netz Rebuttal), Ex. RR-99.

Dr. Netz also tested adding an IMF Fuel Index variable as an alternative to the Baltic Dry Shipping Index because "fuel is a component of both shipping costs and production (energy) costs and so would be relevant even to CRTs produced in North America." *Id*. at 61-62. The CDT overcharge increased by 1.2 percentage points to 23.2 percent and the CPT overcharge decreased by 0.7 percent to 8.2 percent. *Id.*, Ex. RR-99.

Finally, Dr. Netz disputed the relevance of the U.S. electronic store sales variable to the CPT regression because Dr. Willig acknowledged that he was not sure what data are in this variable, but he thought it included refrigerators and other non-CRT home appliances. *Id*. at 62. When Dr. Netz tested adding this variable to her CPT regression, the resulting overcharge was 6.3 percent—still a significant positive overcharge. *Id.*, Ex. RR-99.

In sum, based on her extensive experience and judgment, Dr. Netz "concluded that [her] results were reliable in part because they correspond with economic theory, . . . [the] estimates of

[16] The KRW/USD exchange rate and Korean labor costs variables are not justified by Dr. Netz's use of the Bank of Korea's display glass price index. Hr'g Tr. 271:3-17. Korean display glass prices were correlated with global display glass prices, making it an appropriate proxy. TX 5 (Netz Rebuttal) at 61. Korean labor costs and the exchange rate are specific to South Korea, which is not representative of Asia or the 13 other countries outside Asia where CRTs were manufactured.

overcharges are well within the range of recognized overcharges in the economic literature, that the coefficients are highly statistically significant, that the equation overall provides a good statistical fit to the data, and the results are robust to sensitivity analyses[.]" Hr'g Tr. 48:3-10.

D. Ms. Guerin-Calvert's Modified Version of Dr. Netz's Overcharge Model is Fundamentally Flawed, Unreliable, and Lacks Credibility

Ms. Guerin-Calvert did not specify her own regression model to estimate damages. Hr'g Tr. 292:09-292:11; 347:6-347:8. She viewed her role as assessing the models of plaintiffs' experts to "inform" the Court in its decision regarding a "reasonable estimate of damages." *Id*. 200:7-200:15; 202:9-12. Ms. Guerin-Calvert does not dispute that the cartel's effectiveness is ultimately an empirical question (*id*. at 229:20-230:9; TX 11 (Guerin-Calvert Rpt.) at 8, ¶ 21), or that her analyses demonstrate an impact and positive overcharge resulting from the conspiracy. Hr'g Tr. 386:5-386:12; 387:25-388:6. After making "significant modifications" to Dr. Netz's model, Ms. Guerin-Calvert asks the Court to adopt her estimated overcharges of 1.6 percent for CDTs and 2.3 percent for CPTs. *Id*. at 232:17-233:8; 234:18-235:1, 284:24-285:23.[17] However, Ms. Guerin-Calvert's proffered percentages are not a reasonable estimate of overcharges because her methodology is fundamentally flawed, unreliable, and lacks credibility.

As described above, to arrive at her CDT overcharge estimate, Ms. Guerin-Calvert divided the 1995-2006 dummy variable into three periods (1995, 1996 and 1997-2006) and added several additional control variables (desktop computer shipments, shipping costs, labor costs and exchange rates). *Id*. at 295:7-11, 297:14-24; 298:3-11. The results of this regression were 16.1 percent for 1995, 23.5 percent for 1996, 1.6 percent for 1997 to 2006 and **negative** 2.7 percent for 2007. *Id*. at 299:3-16; TX 11 (Guerin-Calvert Rpt.) at 82 (Column 3 of Table 8). The 1.6 percent result for 1997 to 2006 is not statistically significant. Hr'g Tr. 299:17-19. The weighted average overcharge for the full damages period in this regression is 6.35 percent. *Id*. at 302:6-9.

[17] Ms. Guerin-Calvert's claimed overcharge estimates based on significantly altering Dr. Johnson's model are 7.0 percent for CDTs and 1.5 percent for CPTs. Hr'g Tr. 232:17-233:8.

Instead of "allowing the data to speak" and using the 6.35 percent weighted average overcharge that this regression produced as her damages estimate, Ms. Guerin-Calvert discarded the 16.1 percent overcharge for 1995 and the 23.5 percent for 1996 (both of which were statistically significant) and replaced them with the implausible 1.6 percent overcharge that her model generated for the period from 1997 to 2006 (which was not statistically significant). *Id*. at 299:3-25, 300:12-15. In other words, she discarded the results of her two annual dummy cartel variables in favor of the results of her 1997-2006 dummy variable, even though her primary criticism of Dr. Netz's model was that its 1995-2006 dummy variable was too long to capture changes in the market. *Id*. at 275:16-23. In addition to this fundamental inconsistency, Ms. Guerin-Calvert's purported justifications for this approach did not withstand scrutiny on cross examination.

One justification offered by Ms. Guerin-Calvert was her conclusion that the cartel was not very active in 1995-96 because few target prices were identified, thus she infers that CDT price increases in those years must be due to non-cartel factors. TX 11 (Guerin-Calvert Rpt.) at p. 76, ¶ 116. On cross-examination, Ms. Guerin-Calvert conceded that target prices were not the only factor Dr. Netz relied on in evaluating the cartel's effectiveness, and acknowledged other factors including capacity and output coordination, and information exchanges. Hr'g Tr. 318:16-320:2. Ms. Guerin-Calvert also acknowledged that cartels can successfully raise prices without setting target prices. *Id*. at 320:3-321:16. In fact, Dr. Netz identified over 70 cartel meetings and communications in 1995 and 1996. TX 5 (Netz Rebuttal) at 14, 57, Ex. RR-85; TXs 19, 38-44.

Another purported justification was that CDT price increases in 1995 and 1996 were due to tight capacity. *Id.* at 330:9-12. As shown on cross-examination, however, Ms. Guerin-Calvert's own report cited a Toshiba document stating that CDT capacity exceeded output by 19 percent in 1996. *Id*. at 330:13-332:18. Ultimately, Ms. Guerin-Calvert was forced to concede, "[t]hat there may have been some excess capacity at some point in 1996 . . .." *Id*. at 332:13-18.[18]

[18] *See also, e.g.,* TX 38 and 39 (meeting reports from 1995 and 1996 show CDT supply exceeded demand in 1996). Ms. Guerin-Calvert also refused to admit there was evidence that the cartel

Yet another purported justification was the claimed Windows 95 "demand shock" caused the CDT price increases in 1995 and 1996. *Id*. at 394:23-396:07. But Windows 95 did not launch until August 24, 1995, and both Dr. Netz and Dr. Johnson testified that they did not see evidence that a demand shock was undermining their results. *Id*. at 91:22-24; 95:10-12; 162:14-163:4; *see also* TX 38-39. Ms. Guerin-Calvert acknowledged that the desktop computer shipment variable that she added to Dr. Netz's model indirectly controlled for Windows 95 related demand. *Id*. at 398:20-399:7. She further acknowledged that when Dr. Netz added the desktop computer shipment variable to her model, the overcharge increased from 22 percent to 28.2 percent. *Id.* at 311:16-25.

Still another of Ms. Guerin-Calvert's purported justifications for discarding her results for 1995 and 1996 was that a glass shortage caused CRT price increases. *See* TX 11 (Guerin-Calvert Rpt.) ¶¶ 118 and App. D at 1 (describing "acute shortages of glass for CRT production"). However, due to a conflict between her and Dr. Willig's treatment of 1995-1996, Ms. Guerin-Calvert attempted to walk away from this justification. Specifically, she testified that she was "particularly focused" on demand, cost, and capacity factors and not "predominantly on the glass shortages" (*id.* at 327:15-328:3), and that factors besides the glass shortage were the "predominant" reasons for her treatment of 1995 and 1996. *Id*. at 306:6-19. Ms. Guerin-Calvert's testimony is, however contradicted by her 2014 opening merits report which stated that glass shortages were "the major culprit" behind CRT "price increases." *Id*. at 328:12-330:4. Ms. Guerin-Calvert also acknowledged that Dr. Netz directly controlled for CRT glass costs, *id*. at 328:4-11, thus she had no basis for discarding the 1995 and 1996 overcharges based on the glass shortage and higher glass prices.

Ms. Guerin-Calvert's decision to add 1995 and 1996 dummy variables to Dr. Netz's CDT regression and then ignore their results is further undermined by Dr. Willig's modifications of the CPT regression, which she adopted in full. *Id.* at 303:9-21. Like Ms. Guerin-Calvert, Dr. Willig pointed to the 1995-96 glass shortages and that documented target pricing was lacking for this period, and contended that non-cartel factors caused the price increases in those years. *Id.* at

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meetings allowed suppliers to raise CRT prices faster when supply was tight even after being shown the deposition testimony of Chunghwa's C.C. Liu. *Id*. at 332:19-336:3.

305:19-306:19. Nevertheless, Dr. Willig did not add separate cartel dummies for 1995 and 1996, and he used all the coefficients generated by his regression. *Id.* at 303:9-304:6, 307:23-308:8.[19]

Finally, Ms. Guerin-Calvert's differing treatment of Dr. Johnson's and Dr. Netz's models further undermines the credibility of her overcharge estimates. As noted, Dr. Johnson and Dr. Netz both used dummy variable multiple regression models with similar cartel and control variables. Despite claiming that Dr. Johnson's model also suffered from an "omitted variable" problem, Hr'g Tr. 353:13-20, Ms. Guerin-Calvert did not add the additional control variables to Dr. Johnson's model that she added to Dr. Netz's model. *Id*. at 360:12-24. Instead, she added dummy variables for every cartel year to Dr. Johnson's model. *Id*. at 245:9-246:10. The insertion of these annual dummy variables led to implausible negative overcharges for many of the years in Ms. Guerin-Calvert's regression, further calling her methodology into question. *Id.* at 368:12-370:9.

In sum, Ms. Guerin-Calvert's modified version of Dr. Netz's overcharge model—which she offered as the basis for the damages award to IPPs, *id*. at 284:24-285:23—is fundamentally flawed, lacks credibility, and does not provide a reliable estimate of the overcharges for calculating damages.

IV. CONCLUSION

Based on the applicable law, the well-pled allegations of IPPs' complaint, and the record evidence, IPPs respectfully request that the Court (1) credit the analyses and opinions of IPPs' expert, Dr. Janet Netz, regarding the widespread effect and the amount of damages caused by the CRT cartel and reject the criticisms of Irico's expert, Ms. Margaret Guerin-Calvert; (2) enter IPPs' findings of fact and conclusions of law, finding that the 22 Indirect Purchaser State Classes have been harmed by the conduct of the CRT cartel in the aggregate amount of **$2,697,957,236**; and (3) schedule a post-hearing status conference to address allocation of the aggregate damages award to the 22 State Classes and trebling where appropriate, and all other post-trial issues and proceedings.

[19] Dr. Willig's 2.3 percent estimated overcharge for CPTs is nonetheless unreliable due to his inclusion of multiple additional unnecessary control variables leading to multicollinearity problems as explained in Section III. A. 2, above.

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